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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/696,988	10/26/2000	Thomas C. Meiller	89190.145700/DP-302200	3296

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John VanOphem Esq
Delphi Technologies Inc
Post Office Box 5052 Mail Code 480414420
Troy, MI 48007

EXAMINER

MCHENRY, KEVIN L

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 09/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/696,988	Applicant(s) MEILLER ET AL.	
	Examiner Kevin L. McHenry	Art Unit 1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-5,7,8,10-21 and 26-47 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2-5,7 and 8 is/are allowed.
- 6) ☒ Claim(s) 10-21 and 26-47 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims 23, 35, 46, and 47 are rejected under 35 U.S.C. 102(a) as being anticipated by Johnson et al. (U.S.P. 5,957,114).

Johnson et al. teach an automotive emissions control system that includes a housing that includes a purge port, a vent port, and a vapor inlet port. Sorbent material, such as activated carbon, is disposed within the housing so that the ports are in communication with the sorbent material. The housing is elongate and forms a channel within the housing. A second sorbent material is disposed within the housing intermediate the first sorbent material and the vent port so that any flow of air into and out of the vent port flows through the second sorbent material. A flow of air flowing through the first sorbent material, through the second sorbent material, and out the vent port would flow through the sorbent materials in series. A plenum serves to connect the channel of the housing and the vent port of the housing. (see U.S.P. 5,957,114; Figures 3 and 6A; column 1, lines 5-7; column 3, lines 52-61; column 4, lines 12-67; column 5, lines 1-12).

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 21, 23, 35, 46, and 47 are rejected under 35 U.S.C. 102(e) as being anticipated by Jamrog et al. (U.S.P. 6,237,574).

Jamrog et al. teach an automotive emissions control system that includes a housing that includes a purge port, a vent port, and a vapor inlet port. Sorbent material, such as activated carbon, is disposed within the housing so that the ports are in communication with the sorbent material. The housing is elongate and forms a channel within the housing. A second sorbent material is disposed within the housing intermediate the first sorbent material and the vent port so that any flow of air into and out of the vent port flows through the second sorbent material. A flow of air flowing through the first sorbent material, through the second sorbent material, and out the vent port would flow through the sorbent materials in series. A plenum serves to connect the channel of the housing and the vent port of the housing. The housing taught by Jamrog et al. also contains flow diffusers near its ends. The flow diffusers are the frusto-conical sections 78 and 78'. (see U.S.P. 6,237,574; Figures 3 and 6A; column

1, lines 5-7; column 3, lines 43-67; column 4, lines 1-32; column 5, lines 4-38). The flow diffusing nature of such frusto-conical sections is shown by Chang et al. (see U.S.P. 3,964,875; column 1, lines 31-34).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 10-13 and 36-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson et al. (U.S.P. 5,957,114) as applied to claims 23, 35, 46, and 47 above, and further in view of Park et al. (U.S.P. 5,924,294).

Johnson et al. teach the system noted in section 2. However, Johnson et al. do not teach that the sorbent material has a plurality of passages so that the sorbent material has a body that is coated with or constructed of the sorbent material.

Park et al. teach a scrubber element containing activated carbon. Park et al. teach that formed bodies of activated carbon with passages are desirable for applications with reasonably high rates of fluid flow and a desired low level of back pressure. Park et al. further teach that their process produces such bodies so that they are made without cracking and have sufficient strength. The body is made by extruding the body from a mixture of activated carbon, ceramic forming material, flux material, a binder, and

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water. (see U.S.P. 5,914,294; column 1, lines 6-10, 27-34, 65-67; column 2, lines 1-4, 15-34, 41-45, 50-51; column 3, line 27-36, 44-49; column 4, lines 10-14, 45-55).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the system of Johnson et al. by the teachings of Park et al. One would have been motivated to do so in order to provide a scrubber element that was suitable for high fluid flow rates and low back pressures while having a sufficient strength, as taught by Park et al.

7. Claims 10-13, 26-29, 34, 36-40, and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jamrog et al. (U.S.P. 6,237,574) as applied to claims 21, 23, 35, 46, and 47 above, and further in view of Park et al. (U.S.P. 5,924,294).

Jamrog et al. teach the system noted in section 4. However, Johnson et al. do not teach that the sorbent material has a plurality of passages so that the sorbent material has a body that is coated with or constructed of the sorbent material.

Park et al. teach a scrubber element containing activated carbon. Park et al. teach that formed bodies of activated carbon with passages are desirable for applications with reasonably high rates of fluid flow and a desired low level of back pressure. Park et al. further teach that their process produces such bodies so that they are made without cracking and have sufficient strength. The body is made by extruding the body from a mixture of activated carbon, ceramic forming material, flux material, a binder, and water. (see U.S.P. 5,914,294; column 1, lines 6-10, 27-34, 65-67; column 2, lines 1-4, 15-34, 41-45, 50-51; column 3, line 27-36, 44-49; column 4, lines 10-14, 45-55).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the system of Jamrog et al. by the teachings of Park et al. One would have been motivated to do so in order to provide a scrubber element that was suitable for high fluid flow rates and low back pressures while having a sufficient strength, as taught by Park et al.

8. Claims 21, 26-29, 34 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson et al. (U.S.P. 5,957,114) in view of Park et al. (U.S.P. 5,924,294) as applied to claims 10-13, 23, 35-40, 46, and 47 above, and further in view of Chang et al. (U.S.P. 3,964,875).

The former references teach the system described above in section 6. However, these references do not teach the use of a flow diffuser.

Chang et al. teach a sorbent element that includes a flow diffuser disposed near one end of the element. Chang et al. teach that the flow diffuser provides an improved flow front for gases that pass through the element (see U.S.P. 3,964,875; Figure 3; column 1, lines 55-65).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the system taught above by the teachings of Chang et al. One would have been motivated to provide a flow diffuser in order to provide an improved flow front for gases that pass through the scrubber element, as taught by Chang et al.

9. Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson et al. (U.S.P. 5,957,114) in view of Park et al. (U.S.P. 5,924,294) as applied to claims 10-13, 23, 35-40, 46, and 47 above, and as being unpatentable over Jamrog et al. (U.S.P. 6,237,574) in view of Park et al. (U.S.P. 5,924,294) as applied to claims 10-13, 21, 23, 26-29, 34-40, and 45-47, and further in view of Mizuno et al. (U.S.P. 4,386,947).

The former references teach the systems taught in sections 6 and 7. However, these references do not teach that the scrubber includes seals.

Mizuno et al. teach a scrubber in which a rubber seal is placed between the periphery of the scrubber element and the scrubber housing to seal the scrubber and prevent flow through interstices between the element and housing. Mizuno et al. also teach a scrubber element with a face seal to prevent flow through interstices formed between the scrubber end and the housing. (see U.S.P. 4,386,947; Figures 7 and 11; column 6, lines 44-56; column 7, lines 16-33, 68; column 8, lines 1-3).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the systems taught above by the teachings of Mizuno et al. One would have been motivated to do so in order to provide seals to prevent flow between the scrubber and housing, as taught by Mizuno et al.

10. Claims 17-20, 30-33, and 41-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson et al. (U.S.P. 5,957,114) in view of Park et al. (U.S.P. 5,924,294) as applied to claims 10-13, 23, 35-40, 46, and 47 above, and as being unpatentable over Jamrog et al. (U.S.P. 6,237,574) in view of Park et al. (U.S.P.

5,924,294) as applied to claims 10-13, 21, 23, 26-29, 34-40, and 45-47, and further in view of Gadkaree et al. (U.S.P. 6,097,011).

The former references teach the systems taught in sections 6 and 7. However, these references do not teach the use of a heater.

Gadkaree et al. teach that scrubber elements with activated carbon may have electric current passed through them in order to facilitate desorption of adsorbed gases so that the body regenerates for continued use. Gadkaree et al. teach that wires connect a power source to metal coatings on the surface of the scrubber body. The contacts provide electricity and heat to the body, which in turn produces heat from the resistive properties of its carbon/ceramic body. (see U.S.P. 6,097,011; Figure 3; column 1, lines 7-17; column 2, lines 8-13, 22-30, 66-67; column 3, lines 1-6; column 7, lines 43-50).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the systems noted above by the teachings of Gadkaree et al. One would have been motivated to do so in order to provide a means of regenerating the sorbent material for continued use, as taught by Gadkaree et al.

Allowable Subject Matter

11. Claims 2-5, 7, and 8 are allowed.
12. The following is a statement of reasons for the indication of allowable subject matter: the instant application is deemed to be a nonobvious improvement over the invention of Johnson et al. (U.S.P. 5,957,114) and Jamrog et al. (U.S.P. 6,237,574). The

improvements comprise a heating element associated with the body wherein the heating element comprises a resistive heating wire.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Maeda et al. (U.S.P. 5,743,943), Reddy (U.S.P. 5,148, 793), Hiramatsu et al. (U.S.P. 4,308,840), St. Amand (U.S.P. 3,730,158), are Hyodo et al. (U.S.P. 5,851,268) are cited of interest for illustrating the state of the art in scrubber design.

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Terminal Disclaimer

15. The terminal disclaimer filed on 2 July 2004 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date

of 6,230,693 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Response to Amendment

16. Upon carefully reviewing applicant's amendment filed 2 July 2004, the examiner acknowledges the amendments to the specification and the amendments to the claims. The former drawing objection and objection to the specification are withdrawn in view of applicant's amendments.

Response to Arguments

17. Applicant's arguments filed 2 July 2004 have been fully considered but they are not persuasive.

The applicants argue that Johnson et al. and Jamrog et al. do not teach a scrubber that has at least two scrubber elements in series for a flow of air through a channel such that air flows sequentially through the two elements for filtering bleed emissions from the flow. The examiner notes that Johnson et al. does in fact teach two elements in series in column 5, lines 13-23, by saying that fuel vapor from the tank is directly purged in purge port 61 with intermediate port 57 closed by a cap so that first hydrocarbon adsorbing zone 80 cooperates with second hydrocarbon adsorbing zone 86 so that both zones adsorb hydrocarbons. Jamrog et al. teach a similar configuration in column 5, lines 39-49. In this configuration the scrubber element is designed so that emissions from a purge operation are adsorbed. This setup is also capable of being used for filtering bleed emissions due to the configuration of the two elements in series.

The applicants argue that Johnson et al. and Jamrog et al. do not teach an evaporative emissions assembly that includes an evaporative canister with ports and sorbent material, a scrubber with a housing and an element, and a conduit as cited in claim 35. The examiner notes that Johnson et al. and Jamrog et al. teach an assembly that includes a housing with ports and two scrubber elements with sorbent material inside the housing. The housing defines a channel for fluid flow and defines a conduit connecting the channel to the vent port 68. The first hydrocarbon adsorbing zone serves as a canister sorbent material while the second hydrocarbon adsorbing zone serves as a scrubber element. The teachings of Johnson et al. and Jamrog et al. read upon the applicant's cited features in their broadest sense. The examiner further notes that the applicant has not claimed that the canister and scrubber are in different housings or cite any other structures to differentiate their invention from the teachings of Johnson et al. or Jamrog et al.

The applicant argues that Jamrog et al. do not teach flow diffusers proximate to the ends of the body because the flow diffusers are in an intermediate area of the scrubber elements. This argument is unpersuasive because the term proximate is a broad term and the teachings of Jamrog et al. fit within its meaning. Jamrog et al. show flow diffusers that are proximate to an end of the scrubber elements when the applicant's claim is viewed in its broadest sense.

The applicants argue that there is no motivation or suggestion to combine Chang et al. with Johnson et al. and Park et al. because it would not result in proper diffusion of airflow. The applicant argues this but does not provide any evidence to support this assertion. It is not clear from their argument that all flow would be directed upward or

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radially and if this would happen it would not result in proper diffusion across the adsorption zones. As noted above, Chang et al. teach that the flow diffuser provides an improved flow front for gases that pass through the element, thus providing a motivation for combining with Johnson et al. and Park et al. The examiner further notes that one of ordinary skill in the art would recognize that the teachings of Park et al. show the use of the pinwheel diffuser at the outlet of a narrow conduit into a larger conduit with the pinwheel providing diffusion of flow across the cross section of the larger conduit. In light of this, one of ordinary skill would understand that the use of a narrow inlet conduit may be needed to practice the teachings of Chang et al. and achieve flow diffusion.

18. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin L. McHenry whose telephone number is (571) 272-1181. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas G. Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kevin McHenry

KILEY S. STONER
PRIMARY EXAMINER

Kiley Stoner 9/22/04